IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant(s): Jacobs et al.   Group Art Unit: 2183

Serial No.: 10/762,863   Confirmation No. 5930

Filed: January 22, 2004   Examiner: Vicary, Keith E.

For: COMPRESSED INSTRUCTION FORMAT FOR USE IN A VLIW
     PROCESSOR

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Commissioner for Patents
P.O. Box 1450
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BRIEF ON APPEAL

Sir/Madam:

    This brief is in furtherance of Applicants' Notice of Appeal filed on June 11, 2009, appealing the decision of the Examiner dated March 12, 2009 finally rejecting claims 30-32.

I. Real Party in Interest

The real party in interest in this appeal is NXP B.V., High Tech Campus 60, 5656 AG Eindhoven, The Netherlands.

II. Related Appeals and Interferences

There are currently no related appeals or interference proceedings in progress that will directly affect, or be directly affected by, or have a bearing on the Board's decision in the present Appeal.

III. Status of Claims

Claims 1-25 were originally filed on January 22, 2004. In a preliminary amendment filed on January 22, 2004, claims 1-24 were canceled, claim 25 was amended, and new claims 26-29 were added. In response to the Office Action of January 22, 2007, claims 25-29 were canceled and new claims 30-34 were added. In response to the Office Action of October 9, 2008, claims 33 and 34 were canceled and new claims 30-32 were amended.

Claims 30-32 stand rejected under 35 U.S.C. 102(e) as allegedly being anticipated by U.S. Patent No. 5,500,942 ("Eickemeyer et al."). In addition, Claims 30-32 also stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Patent No. 5,632,024 ("Yajima et al.") in view of U.S. Patent No. 5,057,837 ("Colwell et al.") and U.S. Patent No. 4,858,104 ("Matsuo et al.")

This Appeal is made with regard to pending claims 30-32.

IV. Status of Amendments

No amendments were filed subsequent to final rejection.

V.   Summary of Claimed Subject Matter

The claimed invention includes a computer storage medium (104, 103) having stored therein a sequence of instructions, which may be used in a microprocessor (101), such as a VLIW processor (See Figs. 1a and 1b, and lines 6-21 on page 7 of the Specification).

According to an embodiment, as recited in the independent claim 30, a computer storage medium (104, 103) having stored therein a sequence of instructions (See Figs. 1a and 1b, and lines 6-21 on page 7 of the Specification). The sequence of instructions includes a first instruction (INSTRUCTION 1) including a format field (FORMAT 2) that specifies an instruction compression format (See Fig. 3, and lines 1-18 on page 18 of the Specification), and a second instruction (INSTRUCTION 2), following the first instruction, that is compressed according to the format field in the first instruction (See Fig. 3, lines 1-18 on page 18, lines 16-24 on page 29, and lines 1-8 on page 30 of the Specification).

VI.   Grounds of Rejection to be Reviewed on Appeal

Whether claims 30-32 are anticipated under 35 U.S.C. §102(e) by Eickemeyer et al.

Whether claims 30-32 are unpatentable under 35 U.S.C. §103(a) over Yajima et al. in view of Colwell et al. and in view of Matsuo et al.

VII.   Argument

In the Final Office Action of March 12, 2009, the Examiner rejected claims 30-32 under 35 U.S.C. §102(e) as allegedly being anticipated by Eickemeyer et al. In addition, the Examiner rejected claims 30-32 under 35 U.S.C. §103(a) as allegedly being unpatentable over Yajima et al. in view of

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Colwell et al. and in view of Matsuo et al.

However, the cited reference of Eickemeyer et al. fails to disclose the claimed "*first instruction*" of the independent claim 30, which is also not disclosed or suggested in the cited references of Yajima et al., Colwell et al. and Matsuo et al. Thus, the independent claim 30 is neither anticipated under 35 U.S.C. §102(e) by Eickemeyer et al. nor obvious under 35 U.S.C. §103(a) over Yajima et al. in view of Colwell et al. and in view of Matsuo et al.

A. Rejection of Independent Claim 30 Under 35 U.S.C. §102(e)

The independent claim 30 was rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Eickemeyer et al. However, the cited reference of Eickemeyer et al. fails to disclose each claimed element of the independent claim 30. Thus, the independent claim 30 is not anticipated by Eickemeyer et al. under 35 U.S.C. §102(e).

The independent claim 30 recites in part "*a first instruction including a format field that specifies an instruction compression format*," which is not disclosed in the cited reference of Eickemeyer et al. Thus, the independent claim 30 is not anticipated by the cited reference of Eickemeyer et al.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

In the Final Office Action of March 12, 2009, the Examiner alleges on pages 4 and 5 that the cited reference of Eickemeyer et al. in column 13, lines 20-22, discloses the claim limitation of "*a first instruction including a format field that specifies an instruction compression format*," as recited in claim 30. In support of this allegation, the Office Action makes the following assertion: "variable length instructions are compressed in that they are not fixed length

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instructions and relatively smaller instructions in comparison to other instructions do not need any filler bits and they are compressed into memory from a standard fixed length implementation." However, this assertion is not supported by the cited reference of Eickemeyer et al.

First of all, the cited reference of Eickemeyer et al. does not teach that "[the variable length instructions] are **compressed** into memory from a standard fixed length implementation" (emphasis added). Applicant has carefully reviewed Eickemeyer et al. and has failed to find support for this assertion.

Second, the cited reference of Eickemeyer et al. does not teach that "relatively smaller instructions in comparison to other instructions do not need any filler bits." Applicant has carefully reviewed Eickemeyer et al. and has failed to find support for this assertion. In fact, there is no mention of any "filler bits" in the cited reference of Eickemeyer et al.

In addition, the Examiner states on page 5 of the Office Action that "[f]or example, a first instruction which indicates a next instruction begins in two bytes, wherein an instruction can be up to six bytes long, specifies that the next instruction is essentially compressed into memory by four extra bytes." This example merely points out that instructions can be of variable lengths, as explained in Eickemeyer et al. The presence of variable length instructions does not necessary mean that shorter instructions have been compressed.

Furthermore, as admitted by the Examiner on page 4 of the Office Action, the cited reference of Eickemeyer et al. discloses that "the first instruction starts with the first byte, the value in the **length field** for the first byte **indicates where the second instruction starts**" (emphasis added). Clearly, a length field that indicates where the second instruction starts is not the same as "*a format field that specifies an instruction compression format,*" as recited in the independent claim 30. The length field described in Eickemeyer et al. does not and cannot specify "*an instruction compression format,*" which is the instruction compression format

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according to which the second instruction is compressed, as recited in the independent claim 30.

In the Advisory Action of May 29, 2009, the Examiner essentially asserts that since the cited reference of Eickemeyer et al. teaches variable length instructions, the claimed limitation of *"a first instruction including a format field that specifies an instruction compression format"* is somehow disclosed. As explained above, Applicants respectfully assert that this claimed limitation of claim 30 is not disclosed by the cited reference of Eickemeyer et al.

Since the cited reference of Eickemeyer et al. fails to disclose the claimed limitation of *"a first instruction including a format field that specifies an instruction compression format,"* the independent claim 30 is not anticipated by cited reference of Eickemeyer et al.

B. Rejection of Independent Claim 30 Under 35 U.S.C. §103(a)

The independent claim 30 was also rejected under 35 U.S.C. §103(a) as allegedly being obvious over Yajima et al. in view of Colwell et al. and in view of Matsuo et al. However, the cited references of Yajima et al., Colwell et al. and Matsuo et al. et al. fail to teach or suggest each claimed element of the independent claim 30. Thus, the independent claim 30 is not obvious over Yajima et al. in view of Colwell et al. and in view of Matsuo et al.

The Examiner alleges on page 6 of the Final Office Action that the cited reference of Colwell et al. in column 2, lines 5-19, column 14, lines 65-68, and column 15, lines 1-19 and 38-40, discloses the claim limitation of *"a first instruction including a format field that specifies an instruction compression format,"* as recited in claim 30. The cited reference of Colwell et al. describes in column 14, lines 65-68, and column 15, lines 1-9, an instruction word having thirty-two bit fields with an associated mask word, where each bit of the mask word is associated with one of the thirty-two fields of the instruction word such that for each zeroed field, the corresponding bit of the mask word is zeroed, while

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for other fields, the corresponding bit of the mask word is set to one. As further described in column 15, lines 38-40, the zeroed fields are not stored and the mask words are employed. However, none of these thirty-two fields of the instruction word "*specifies an instruction compression format*," as recited in claim 30. The fields of the instruction word correspond to different operations, as described in column 14, lines 40-64, of Colwell et al., which could be zeroed. None of the zeroed fields of the instruction word "*specifies an instruction compression format*," as recited in claim 30. Thus, the cited reference of Colwell et al. fails to disclose "*a first instruction including a format field that specifies an instruction compression format*," as recited in claim 30. The other cited references of Yajima et al. and Matsuo et al. also fail to disclose such limitation of claim 30.

Since the claim limitation of "*a first instruction including a format field that specifies an instruction compression format*" is not disclosed or suggested in any of the cited references of Yajima et al., Colwell et al. and Matsuo et al., the independent claim 30 is not obvious in view of these references.

C. Rejection of Dependent Claims 31 and 32 Under 35 U.S.C. §102(e) and 35 U.S.C. §103(a)

Each of the dependent claims 31 and 32 depends on the independent claim 30. As such, these dependent claims include all the limitations of the independent claim 30. Thus, these dependent claims are patentable for at least the same reasons as their respective base claims.

SUMMARY

The independent claim 30 is not anticipated by Eickemeyer et al. under 35 U.S.C. §102(e) because Eickemeyer et al. fails to disclose the claimed limitation of "*a first instruction including a format field that specifies an instruction compression format,*" as recited in the independent claim 30. In addition, the independent claim 30 is not obvious over Yajima et al. in view of Colwell et al. and in view of Matsuo et al. under 35 U.S.C. §103(a) because the claimed limitation of "*a first instruction including a format field that specifies an instruction compression format*" is also not disclosed in any of these cited references. The dependent claims 31 and 32 are patentable over the cited references since these dependent claims include all the limitations of the independent claim 30.

For all the foregoing reasons, it is earnestly and respectfully requested that the Board of Patent Appeals and Interferences reverse the rejections of the Examiner regarding claims 30-32, so that this case may be allowed and pass to issue in a timely manner.

Respectfully submitted,

Jacobs et al.

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VIII. Claims Appendix

30.   A computer storage medium having stored therein a sequence of instructions, the sequence of instructions including:

a first instruction including a format field that specifies an instruction compression format; and

a second instruction, following the first instruction, that is compressed according to the format field in the first instruction.

31.   The computer storage medium of claim 30, wherein the second instruction includes a compressed operation, the compressed operation being compressed according to the first format field.

32.   The computer storage medium of claim 31, wherein the second instruction includes a second format field that specifies a compression of an operation in a third instruction.

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IX.   Evidence Appendix

NONE

X.   <u>Related Proceedings Appendix</u>

NONE

Appeal Brief